REMARKS

The present amendment is responsive to the Official Action mailed September 25, 2002. A petition for a two-month extension of the term for response to said Official Action, to and including February 25, 2003 is transmitted herewith.

Claims 39-47 stand withdrawn from consideration as a result of a prior restriction requirement.

In response to the objections to the title and abstract, a new title and abstract have been provided by the present amendment.

Claims 3, 8 and 11-17 were rejected under 35 U.S.C. § 112, first paragraph. By the present amendment, these claims have been amended to remove the objectionable expression "its" in claims 3 and 5; to provide antecedent basis for the expression "the exposed surface of each of said posts" in claim 8 and to remove the confusing and unnecessary language concerning various the surface "surfaces" and the "dielectric sheet" in claim 11. The former expression "dielectric sheet" was intended to refer to the same element as denominated the "support substrate" in claim 1. In this regard, claim 1 has been amended to make the expression "support substrate" uniform throughout the claim. Support for these amendments is believed to be clear from the original text of the claims. Also, claim 13 has been amended to delete the potentially confusing reference to the "apex portion". This amendment is supported by the "apex portion" in original claim 13 and also by the text at page 12, lns. 5 *et seq.* taken in conjunction with Fig. 4A. The "peaks" of the posts as referred to in the specification can only mean the portion of the posts remote from the substrate.

Claims 1, 9 and 18 were rejected under 35 U.S.C. § 102(e) as anticipated by *Otsuki, et al.,* U.S. Patent No. 5,653,891 ("*Otsuki*"). Reconsideration of this rejection is

respectfully requested. Claim 1, by its express language requires that the conductive sheet be coupled to "a support substrate" and that the "selectively removing" step be conducted so as to produce the plurality of posts, each of which has a base surface disposed on the support substrate. The claim thus requires production of plural posts projecting from a common support substrate. One example of this arrangement is shown in Figs. 1A and 1B. After selectively removing portions of sheet 110, a plurality of posts 130 remain in place on a common support substrate, each such post having a base (the wide bottom end of the post) disposed on the support substrate 100.

Otsuki does not teach any process which meets these recitations. In the process described with reference 2, Fig. 6 of *Otsuki*, the individual isolated "large resist films 11" (col. 9, ln. 55) each has an area identical to the area of the individual "convex heat sinks" to be formed. These large resist films are provided "with predetermined intervals" between them. After removal of portions of the metallic sheet 9 by an etching process (Fig. 6B) individual structures 9A are provided. However, each individual structure 9A is disposed on a separate resist film 11. In the process shown in Figs. 7A-7D of the reference, a single, continuous resist film 12 is provided on the bottom side of the metallic sheet. However, the material removal or etching step is interrupted at the stage depicted in Fig. 7B, where the etching process has proceeded only to "up to half the thickness of the material 9" (col. 10, lns. 38-39). At this stage, there are no posts having base surfaces disposed "on the support substrate" assuming for the purposes of argument that resist film 12 constitutes a support substrate. Rather, the continuous metallic sheet remaining at the bottom of the structure is on resist layer 12. Resist layer 12 is then removed (Fig. 7C). It is unnecessary to consider whether the

individual heat sinks 4A of Fig. 7D in this reference could be considered as a plurality of posts formed by selective removal of metal from sheet 9; these individual items do not have bottom surfaces disposed on any support substrate, and are formed only after removal of the contendable substrate 12. In short, neither the two processes used by *Otsuki* to form heat sinks meets the recitations of claim 1.

No teaching in *Otsuki* has been pointed out as teaching a modification of either process so as to bring it within the recitations of claim 1. As the reference does not teach all of the steps set forth in the claim, in the same interrelationship by one another, the reference does not anticipate and the § 102 rejection should be withdrawn.

Moreover, although no rejection under 35 U.S.C. § 103 has been advanced with regard to claim 1, it would not be obvious to modify either of the *Otsuki* processes so as to form a plurality of posts having base surfaces on a common substrate as recited in claim 1. The entire purpose and thrust of *Otsuki* is to produce individual, separate heat sinks. Nothing in the reference has been pointed out as suggesting that there is any advantage to be gained by modifying its process so as to the form plural heat sinks on a common substrate. That would defeat the purpose of the reference. Of course, even a relatively simply modification of a reference process is improper absent some suggestion in the prior art relied upon for rejection which would suggest the desirability with such a modification.

Claim 9 distinguishes over *Otsuki* for all of the reasons advanced above with respect to claim 1 as does claim 18. Further, nothing in *Otsuki* has been pointed out as suggesting application of a metal as a part of the "etch resistant portions" provided on the surface of the metal remote from the support structure as recited in claim 18. One example of such

process is disclosed at page 12, lns. 16 *et. seq.* The only apparent etch resistant metals used in *Otsuki* are silver portions (col. 4, lns. 62-64 in reference numeral 13, Fig. 8) formed between the surface of the metal and the alleged support structure or "large resist films 11" prior to metal removal. There is no suggestion to replace any portion of the etch resistant material or photoresist 10 on the surface, remote from the alleged support structure with silver or any other etch resistant metal.

For these reasons, the § 102 rejection of claims 1, 9 and 18 should be withdrawn.

Claims 2-7 were rejected under 35 U.S.C. § 103 on *Otsuki* in view of *Hoover, et al.*, U.S. Patent No. 4,666,735 ("*Hoover*"). *Hoover* was merely cited as teaching that "a resist is a flexible dielectric substrate". Nothing in *Hoover* has been cited as teaching anything which would remedy the fundamental deficiencies of *Otsuki* as pointed out above in connection with claim 1. Even if one were to adopt the alleged flexible dielectric material of *Hoover* in place of the large resist pieces 11 used in *Otsuki*, one still would not have the process recited in claims 2-7. It is accordingly unnecessary to address the Examiner's allegations as to a supposed "obvious matter of design choice" with respect to the thickness limitation of claim 7 or to consider whether it would be obvious to use such a thickness for the purpose recited in *Otsuki* namely, forming large heat sinks which can be incorporated in an over molded chip assembly as distinguished from forming posts which serve as electrically connecting elements. Moreover, nothing in any reference has even been alleged as teaching formation of elongated process having edges extending along the posts in their direction of elongation, as recited in claims 3 and 5.

For example, present Figs. 3B and 3C, each show both having such edges extending in the direction of elongation of the posts.

Claims 10 and 19-20 were rejected under 35 U.S.C. § 103 on *Otsuki* in view of "Official Notice". The teachings which the Examiner proposes to address through Official Notice are not relied upon as meeting any of the deficiencies pointed out above with respect to claim 1 and accordingly the rejection should be withdrawn. Further, each of claims 19 and 20, depends directly or indirectly, from claim 18 and distinguishes over *Otsuki* for the reasons pointed out above with respect to claim 19. Additionally, the Examiner has not asserted that it is known in the art to apply nickel in a metallic part of the etched resistant portions (claim 18) to be used in a subsequent etching step (claim 9 incorporated by dependency in claims 18 and 19). Thus, even apart from the separate reasons pointed out above with respect to claim 18, the combination of the teachings of *Otsuki* and the knowledge which the examiner would adduce through Official Notice fails to meet the limitations of claim 19. For all of these reasons, the rejections of claims 10 and 19-20 should be withdrawn.

Moreover, if the present rejections are not withdrawn, the Examiner is respectfully requested to cite a reference in support of his assertion that selective deposition of nickel using a photoresist is known. Applicant is not certain what process is contemplated by this allegation and accordingly cannot concede that such process is "well known" or that such process would be combinable with the teachings of *Otsuki*. M.P.E.P. 2144.03.

It is noted that no prior art rejection was applied to claims 8 and 11-17 because of the difficulty in understanding the claims as originally phrased. Claims 11-17 inclusive include the step of connecting the bond pads of a

microelectronic device to the posts formed in the selective removal step. *See* Figs. 2A and 2B which depict bond pads 160 of a microelectronic device such as a semiconductor chip 150 connected to posts 130. Of course, in the preferred embodiments discussed in the specification, the posts serve as connecting elements which connect the finished device to a circuit panel, thereby making connections between via bond pads of the microelectronic element and individual contact pads or sockets on the circuit board. The notion of connecting bond pads of a microelectronic element to the various posts is directly contrary to the teachings of *Otsuki*. In *Otsuki*, the alleged, "posts" are in fact heat sinks and are used as such (*see* Fig. 1A). The heat sink forms no portion of the connections to the bond pads of the chip and is indeed insulated from such connections by an insulating tape 2A (Fig. 1A).

New claims 48-50 have been presented. These claims depend from claim 11, and are supported, *e.g.*, by Figs. 2A and 2B of the drawings and page 10, ln. 15 through page 11, ln. 8 of the specification.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**".

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: February 25, 2003

Respectfully submitted,

By_____

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Version With Markings to Show Changes Made

1. (Twice Amended) A method of fabricating interconnection members for a microelectronic device, the method comprising:

providing a support substrate having a first surface;

coupling a conductive sheet having a uniform thickness to the first surface of the support ~~structure~~substrate; and

selectively removing portions of the conductive sheet thereby producing a plurality of substantially rigid, elongated posts protruding parallel to one another from the first surface of the support ~~structure~~substrate, each post having a base surface and a top surface, wherein each base surface is disposed on the support substrate, the top surfaces being remote from the support substrate and substantially coplanar with respect to one another.

3. (Twice Amended) The method as claimed in claim 2, wherein each said post has a direction of elongation and at least one edge extending along the post in ~~its~~ said direction of elongation.

5. (Twice Amended) The method as claimed in claim 4, wherein each said post has at least a direction of elongation and one edge extending along the post in ~~its~~ said direction of elongation.

8. (Twice Amended) The method as claimed in claim 7, wherein said selectively removing step is performed so that each of said posts has an exposed surface, the method further comprising plating a conductive layer to the exposed surface of each of ~~the~~ said posts.

9. (Amended) The method as claimed in claim 1, wherein the step of selectively removing comprises:

providing etch-resistant portions to a ~~second~~ surface of the conductive sheet remote from the ~~dielectric~~ support substrate; and

etching the conductive sheet, the etch-resistant portions being substantially unaffected by the etching process.

10. (Amended) The method as claimed in claim 9, wherein the providing etch resistant portions step includes:

applying a ~~photo resist~~photoresist layer to the conductive sheet;

selectively developing the photoresist layer to form etch resistant portions and remaining portions; and

removing remaining portions of the photoresist layer.

11. (Amended) The method as claimed in claim 1, further comprising:

providing a microelectronic device having a plurality of bond pads ~~on a first surface above a second surface of the dielectric sheet remote from the posts~~; and

electrically connecting ~~each~~ said bond pads to ~~one~~ said posts.

12. (Amended) The method as claimed in claim 11, wherein said step of providing said microelectronic device is performed so that said microelectronic device overlies a second surface of said support substrate, said second surface of said support substrate being remote from said posts, the method further comprising disposing a compliant layer between the second surface of the ~~dielectric sheet~~ substrate and the ~~first surface of the~~ microelectronic device.

13. (Amended) The method as claimed in claim 12, further comprising soldering ~~an apex~~ a portion of each post remote from said support substrate to a contact on a printed circuit board.

15. (Amended) The method as claimed in claim 11, wherein said support substrate has a second surface the step of electrically connecting ~~including~~includes:

providing a plurality of conductive vias extending from the first surface of the support substrate to the second surface of the ~~dielectric~~ support substrate, each via positioned beneath and in electrical contact with one post;

connecting each bond pad to a respective post through a respective conductive via.

16. (Amended) The method as claimed in claim 15, wherein the connecting step includes providing brazing buttons each extending from one via and coupling each one of said brazing buttons to ~~a~~ one of said bond pads on a ~~chip~~said microelectronic element.